

## EAST Search History

## EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4	US-9931006-\$.D/D. OR US-4629458-\$.D/D. OR US-20030225453-\$.D/D.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2009/12/22 04:56
L2	4	US-9931006-\$.D/D. OR US-4629458-\$.D/D. OR US-20030225453-\$.D/D.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2009/12/22 05:09
L3	737	(138/39).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:11
L4	1874	(138/137).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:11
L5	829	(138/110).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:12
L6	1002	(138/178).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:12

L7	630	(138/108).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:12
L8	9375	(138/39,37,110,108,172,178,177,176,106,129,150,154).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:13
L9	596	(72/74,114,370.19,59).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:13
L10	364	(251/126).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2009/12/22 05:14
S1	2353	nondimensional or non-dimensional or non dimensional	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:16
S2	83127	helix or twisted tube or rotated tube	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:18
S4	192	turbulent kinetic energy	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:19
S5	2204861	pressure or pressure drop	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:19
S6	4606	spiral flow or rotating flow	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:19
S7	0	fluid mass flow2	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:19
S8	895	fluid mass flow	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:19
S9	0	S1 and S2 and S4 and S6 and S8	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:20
S10	0	S1 and S2 and S6 and S8	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:20

S11	77	S1 and S2	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:20
S12	1039	helical tube	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:20
S13	287	S12 and flow rate	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:21
S14	146	S13 and degree	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:21
S15	1537	(604/96.01).CQLS	US-PGPUB; USPAT	OR	OFF	2008/09/16 14:23
S16	455490	helix or helical or twist\$	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:23
S17	1888832	tube or pipe or cylinder	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:24
S18	302	S15 and S16 and S17	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:24
S19	3441	spiral flow	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:56
S20	817	S19 and heli\$	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:57
S21	0	S20 and pressure drop and turbulen\$ and kinetic energy and heli\$ anble	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:57
S22	3	S20 and pressure drop and turbulen\$ and kinetic energy and heli\$ angle	US-PGPUB; USPAT	ADJ	ON	2008/09/16 14:57
S23	1	("4130904").PN.	US-PGPUB; USPAT	OR	OFF	2008/09/16 15:12
S24	21	((("1974110") or ("3457762") or ("3479670") or ("3503246") or ("3606780") or ("3693329") or ("3746126") or ("3750444") or ("4317353") or ("4377083") or ("4466741") or ("4514997") or ("4747697") or ("4900314") or ("5619878") or ("5649951") or ("5653745") or ("5992465") or ("6112768") or ("6442838") or ("6478053"))).PN.	US-PGPUB; USPAT	OR	OFF	2008/09/16 15:30
S25	1	("3313577").PN.	US-PGPUB; USPAT	OR	OFF	2008/09/17 12:53
S26	1	("6514284").PN.	US-PGPUB; USPAT	OR	OFF	2008/09/17 13:55

S27	50	US-20060047334-\$.D.ID. OR US-5876432-\$.D.ID. OR US-6776194-\$.D.ID. OR US-20020179166-\$.D.ID. OR US-7264394-\$.D.ID. OR US-4422773-\$.D.ID. OR US-4798241-\$.D.ID. OR US-5614119-\$.D.ID. OR US-5826977-\$.D.ID. OR US-5826981-\$.D.ID. OR US-4540344-\$.D.ID. OR US-4461579-\$.D.ID. OR US-5213636-\$.D.ID. OR US-20060285051-\$.D.ID. OR US-20070156078-\$.D.ID. OR US-20070204445-\$.D.ID. OR US-6312216-\$.D.ID. OR US-4016097-\$.D.ID. OR US-4305460-\$.D.ID. OR US-4534409-\$.D.ID. OR US-5399015-\$.D.ID. OR US-5458191-\$.D.ID. OR US-4500259-\$.D.ID. OR US-5780935-\$.D.ID. OR US-6239505-\$.D.ID. OR US-4384679-\$.D.ID. OR US-6102561-\$.D.ID. OR US-7041218-\$.D.ID. OR US-5403473-\$.D.ID. OR US-5494589-\$.D.ID. OR US-4288323-\$.D.ID. OR US-6482246-\$.D.ID. OR US-4023834-\$.D.ID. OR US-4501948-\$.D.ID. OR US-5709029-\$.D.ID. OR US-6273673-\$.D.ID. OR US-4826089-\$.D.ID. OR US-4878624-\$.D.ID. OR US-5944362-\$.D.ID. OR US-3817319-\$.D.ID. OR US-4085039-\$.D.ID. OR US-4106527-\$.D.ID. OR US-4278550-\$.D.ID. OR US-4492089-\$.D.ID. OR US-4843840-\$.D.ID. OR US-4879037-\$.D.ID. OR US-5366341-\$.D.ID. OR US-5407079-\$.D.ID. OR US-5557973-\$.D.ID. OR US-5640951-\$.D.ID.	US-PGPUB; USPAT; USOCR	OR	OFF	2008/12/04 21:04
S28	27	("1974110"   "3457762"   "3479670"   "3503246"   "3606780"   "3693329"   "3746126"   "3750444"   "4317353"   "4377083"   "4466741"   "4514997"   "4747697"   "4900314"   "5619878"   "5649951"   "5653745"   "5992465"   "6112768"   "6442838"   "6478053").PN. OR ("6776194").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2008/12/04 21:17
S29	114	((JOHN) near2 (HOUSTON)).INV.	USPAT; USOCR	OR	OFF	2008/12/04 23:24

## EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L11	34	(138/39,37,110,108,172,178,177,176,106,129,150,154).OCLS.	UPAD	OR	OFF	2009/12/22 05:14
L12	3	(72/74,114,370.19.59).OCLS.	UPAD	OR	OFF	2009/12/22 05:15
L13	1	(251/126).OCLS.	UPAD	OR	OFF	2009/12/22 05:15
L15	0	method of determining the helix angle	USPAT; UPAD	ADJ	ON	2009/12/22 05:17
L16	57	helical formation and conduit	USPAT; UPAD	ADJ	ON	2009/12/22 05:18
L17	400	method and helix angle and determining	USPAT; UPAD	ADJ	ON	2009/12/22 05:18
L18	5	non-dimensionalised and turbulent and pressure drop	USPAT; UPAD	ADJ	ON	2009/12/22 05:18
L19	113	turbulent kinetic energy	USPAT; UPAD	ADJ	ON	2009/12/22 05:18
L20	1	non-dimensionalised and pressure drop and turbulent kinetic energy	USPAT; UPAD	ADJ	ON	2009/12/22 05:19

12/22/2009 6:26:01 AM

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